2016
Major Automated Information System
Annual Report

Air and Space Operations Center-Weapon System Increment 10.2
(AOC-WS Inc 10.2)

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations for MAIS Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
AoA - Analysis of Alternatives
ATO - Authority To Operate
APB - Acquisition Program Baseline
BY - Base Year
CAE - Component Acquisition Executive
CDD - Capability Development Document
CPD - Capability Production Document
DAE - Defense Acquisition Executive
DoD - Department of Defense
DoDAF - DoD Architecture Framework
FD - Full Deployment
FDD - Full Deployment Decision
FY - Fiscal Year
IA - Information Assurance
IATO - Interim Authority to Operate
ICD - Initial Capability Document
IEA - Information Enterprise Architecture
IOC - Initial Operational Capability
IP - Internet Protocol
IT - Information Technology
KPP - Key Performance Parameter
$M - Millions of Dollars
MAIS - Major Automated Information System
MAIS OE - MAIS Original Estimate
MAR – MAIS Annual Report
MDA - Milestone Decision Authority
MDD - Materiel Development Decision
MILCON - Military Construction
MS - Milestone
N/A - Not Applicable
O&S - Operating and Support
OSD - Office of the Secretary of Defense
PB - President’s Budget
RDT&E - Research, Development, Test, and Evaluation
SAE - Service Acquisition Executive
TBD - To Be Determined
TY - Then Year
U.S.C- United States Code
USD(AT&L) - Under Secretary of Defense for Acquisition, Technology, & Logistics

Program Information

Program Name

Air and Space Operations Center-Weapon System Increment 10.2 (AOC-WS Inc 10.2)

DoD Component

Air Force

Responsible Office

Program Manager

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References

MAIS Original Estimate

December 2, 2013

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 12, 2013

Program Description

The Air Operations Center-Weapon System (AOC-WS), AN/USQ-163 Falconer, the senior element of the Theater Air Control System, is the weapon system the Commander, Air Force Forces provides the Combined/Joint Force Air Component Commander (C/JFACC) for planning, executing and assessing theater-wide air and space operations. The C/JFACC provides air, space and cyber support to the Combined/Joint Forces Commander (C/JFC) by coordinating, deconflicting and assessing the progress of various weapon systems to advance the C/JFC's campaign. The AOC-WS develops operations strategy and planning documents. The weapon system also disseminates tasking orders, executes day-to-day peacetime and combat air, space and cyber operations, and provides rapid reaction to immediate situations by exercising positive control of friendly forces.

AOC-WS Increment 10.2 will not only develop a robust, open, standardized, net-centric infrastructure implemented by a service-oriented architecture, but will also deliver automated workflows and vertical and horizontal integration of the 3rd Party applications that are used by the AOC, which will shorten decision times and improve data and mission accuracy. This effort will integrate baseline capabilities and develop items to include, but not limited to, dynamic planning and execution, data management, information assurance/security, multi-level security, predictive battlespace awareness, and airspace management in support of the migration towards globally-linked AOCs.

Business Case

Business Case Analysis, including the Analysis of Alternatives: Key functional requirements for this Program are articulated in the CDD dated October 3, 2006, and the CDD Addendum dated December 11, 2009. Requirements were further developed in the AOC Operations Concept approved December 4, 2007. These various requirements were translated into technical baseline requirements in the AOC-WS Increment 10.2 Technical Requirements Document dated November 16, 2009. These requirements were established to provide the warfighter with a net-centric infrastructure and improved automation of user processes that will deliver faster speed of command, improved decision quality, reduction in data entry errors, enhanced accuracy and protection of operations data, and easier integration of new/updated third party systems, all of which lead to a reduction in the total life-cycle cost of operations.

The AOC-WS is a system comprised of multiple information technology component subsystems that are being developed, updated, and/or sustained by other programs and/or developers under their own management and on their own schedules. Studies and analyses were conducted over multiple years to determine the best way to improve Joint and Air Force Command and Control, and specifically, the AOC-WS. These studies and analyses informed the decision-makers and influenced the program’s engineering and acquisition strategies. They also informed the business case described in the original Economic Analysis (EA), approved February 24, 2010. The Director, Cost Analysis and Program Evaluation reviewed these studies and analyses and determined that, along with analysis of operational benefits included in the EA, they met the intent of an AoA. Therefore, a separate AoA document was not required.

The EA considered legacy, Commercial-Off-the-Shelf, and developmental alternatives, and determined the AOC-WS Increment 10.2 Program to be the best cost-effective solution. The EA also confirmed the preferred alternative that had already been selected by the MDA in the ADM "Air and Space Operations Center-Weapon System ADM; Authorization to Perform Specified Pre-Milestone B Activities," dated September 12, 2007. Thus, the conclusion of all the studies and analyses was that there was no other course of action other than modernizing the existing AOC-WS to efficiently and effectively enable the Air Force to satisfy the future requirements for integrated air and space command and control in an affordable manner.

The EA was updated to support the Milestone B decision, and approved by the MDA in an ADM dated October 11, 2013, “Air and Space Operations Center Weapon System Increment 10.2 Milestone B Acquisition Decision Memorandum.”

The Senior Official declared a Critical Change in the December 2012 MAIS Quarterly Report which necessitated a review of possible alternative programs. A Critical Change Report was submitted to Congress on October 12, 2013 and included Section 2, No Alternative. That review determined 'There is no alternative to the system or information technology investment which will provide equal or greater capability at less cost.'

Firm, Fixed-Price Feasibility: The determination of the contract type used for this Program was based on cost and technical risk associated with satisfying the Program's requirements. The MDA approved a cost-type contract because development tasks were considered to be sufficiently complex and technically challenging that it was not feasible to precisely estimate the cost of satisfying the requirements, and it was not practical to reduce cost and technical risk to a level that would permit the use of a fixed-price contract.

Independent Cost Estimate: The Senior Official declared a Critical Change in the December 2012 MAIS Quarterly Report, which necessitated an Independent Cost Estimate (ICE). A Critical Change Report was submitted to Congress on October 12, 2013 and included an OSD-conducted ICE per 10 U.S.C. 2334(a)(6). That ICE determined that the Program costs previously established by the service cost position were reasonable, accurate, and consistent with the findings of the Program Evaluation.

Certification of Business Case Alignment; Explanation: I certify that all technical and business requirements have been reviewed and validated to ensure alignment with the business case. This certification is based on my review of the relevant technical, financial, and programmatic documentation defining this Program.

Business Case Certification:

Name: Mr. STEVEN D. WERT
Organization: Air Force/PEO/Battle Management for AOC-WS Inc 10.2
CAC Subject: CN=WERT.STEVEN.D.1069091020, OU=USAF, OU=PKI, OU=DoD, O=U.S. Government, C=US
Date: 3/13/2015 12:30 PM

Business Case Changes

The Senior Official declared a Critical Change in the December 2012 MAIS Quarterly Report which necessitated a review of possible alternative programs. A Critical Change Report was submitted to Congress on October 12, 2013 and included Section 2, No Alternative. That review determined 'There is no alternative to the system or information technology investment which will provide equal or greater capability at less cost.'

Program Status

Annual Report:

In accordance with Title 10 U.S.C., Chapter 144A, Sec 2445c, the Program Manager reported schedule variances indicating the AOC 10.2 MAIS was approximately 11 months beyond the original schedule estimates for MS-C, July 31, 2015, and FDD, July 31, 2016. Accordingly, the SAE notified to the Congressional Armed Service Committee Ranking Members of a Significant Change on December 3, 2015.

The primary cause of the schedule delays was attributed to contractor difficulty hardening the cyber-security posture of the system and achieving an Interim Authority to Test (IATT) on the Secret Internet Protocol Router Network. An IATT was finally received March 2015 and a contractor conducted System Acceptance Test was completed July 2015 that verified 97.7% of subsystem requirements had been achieved. However, a September 2015 Government conducted Developmental Test of end-to-end system functionality revealed more Test Problem Reports (TPRs) than anticipated, and it was determined that approximately four additional months of contractor development, test and fix time were required prior to Initial Operational Test and Evaluation.

The AFPEO/Battle Management and AOC Program Manager took several steps to reduce or prevent further schedule delays. On September 17, 2015, a second Cure Notice letter was sent to Northrop Grumman (NG) to fix all deficiencies and return with a plan to enter Operational Assessment with a high confidence of success. Schedule risk reduction steps included NG adding additional personnel to resolve TPRs, the Program Management Office (PMO) providing additional test personnel for on-site TPR fixes pre-validation and the PMO streamlining the IA patch process. The PEO continues to engage with the NG VP on a monthly basis to manage progress, and as of December 25, 2015, NG is tracking close, but slightly behind their replan schedule.

The PMO is still evaluating the cost implications of these delays, but preliminary estimates are approximately $30M RDT&E required in FY 2017 to complete the Engineering and Manufacturing Development phase of the program; this additional funding is reflected in the FY 2017 PB. Despite these additional costs, the program is still expected to complete below Significant Change cost threshold values.

Schedule

Schedule Events		
Events	**Original Estimate Objective**	**Current Estimate (Or Actual)**
Preferred Alternative[1]	Sep 2007	Sep 2007
Milestone B	Sep 2013	Oct 2013
Milestone C[2]	Jul 2015	Jun 2016
FDD[2]	Jul 2016	May 2017
FD	TBD	TBD

Memo

1/ The September 12, 2007 Assistant Secretary of Defense for Networks and Information Integration ADM effectively acknowledged selection of AOC-WS Inc 10.2 as the Preferred Alternative, thereby starting the 5-year development window to attain FDD. Chapter 144A of Title 10 U.S.C. provides that any schedule delays caused by contract award protests would not be included in the 5-year development period. Contract protest delays shifted the 5-year end date for a Critical Change from September 11, 2012 until November 3, 2012.

2/ In accordance with Title 10 U.S.C., Chapter 144A, Sec 2445c, the Program Manager reported schedule variances indicating the AOC 10.2 MAIS was approximately 11 months beyond the original schedule estimates for MS-C, July 31, 2015, and FDD, July 31, 2016. Accordingly, the SAE declared a Significant Change on December 3, 2015.

Performance

Performance Characteristics		
Original Estimate Objective/Threshold		**Current Estimate (Or Actual)**
Net Ready KPP: AOC WS must support Net-Centric military operations. AOC WS must be able to enter and be managed in the network and exchange data in a secure manner to enhance mission effectiveness. The AOC must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a Net-Centric military capability.		
AOC WS must fully support execution of all operational activities identified in the applicable joint and AOC integrated architectures and the AOC must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR -mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance, and IA attributes, data correctness, data availability and consistent data processing specified in the applicable joint and system integrated architecture views.	AOC WS must fully support execution of joint critical operational activities identified in the applicable joint and AOC integrated architectures and the AOC WS must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR -mandated GIG IT standards and profiles identified in the TV-1, 2) DISR- mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements including availability, integrity, authentication, confidentiality, and non-repudiation, and issuance of an IATO by the DAA, and 5) Operationally effective information exchanges; and mission critical performance, and IA attributes, data correctness, data availability and consistent data processing specified in the applicable joint and system integrated architecture views.	Will meet threshold.
Collaboration KPP: The AOC WS requires an advanced suite of collaborative capabilities (unclassified through [SAP]) that are approved and in compliance with all DoD standards. This suite shall include both real- and non-real time collaboration; analog and digital audio; video; video teleconference; text chat; whiteboard; SMART boards; video/audio broadcast; scrolling bulletins; and shared applications, files, web tools, and virtual collaboration environments. This suite shall include the capability to initiate and manage virtual collaboration within a collocated AOC, among distributed AOC teams/divisions (without adverse operational impact from latency and in compliance with foreign disclosure policies), with Higher Headquarters, with resource unit C2 centers, and other Theater Air Control System nodes to include U.S., National, allied, coalition (multinational), joint, and reachback support (e.g., functional AOCs, intelligence centers).		
1) Inter Theater; Global. 2) Collaboration service accessible through all applications, with all capabilities listed in the above description. 3) Collaboration services across individual security domains up to and including sensitive compartmented information, SAR/SAP. 4) Loading (a) 200 meeting sessions of 75 users each and six large sessions of 1,000 users each (b) Each user can schedule, initiate, use, and/or manage 25 sessions. 5) Digital Audio for specific AOC positions that require intensive voice collaboration,	1) Intra AOC; Intra Theater. 2) Collaboration service with audio/voice, still and motion video, Video Teleconference, text chat, whiteboard, and integrated office tools. 3) Collaboration services within individual security domains -Nonsecure Internet Protocol Router Network and Secret Internet Protocol Router Network. 4) Loading (a) 100 meeting sessions of 75 users each and three large sessions of 1,000 users each (b) Each user can schedule, initiate, use, and/or manage 12 sessions.	Will meet threshold.

coordination, and communication (e.g., Combat Search and Rescue).		
Materiel Availability (Sustainment) KPP with KSAs: The AOC WS and its components are required to operate 24 hours a day, continuously, for extended periods (>30 days to indefinitely) to support designated operations. Each AOC is therefore the end item for materiel availability to fulfill the continuing C2 mission, never totally offline for planned down time and only in extreme circumstance as related to the Reliability KSA or natural disaster might be down for an unplanned event until reconstitution or transfer of function elsewhere.		
MTBM≥ 1,200 hours; Mean Down Time ≤ 24 hours; Availability (Operational), Availability (Materiel) = .98.	MTBM≥ 1,200 hours; Mean Down Time ≤ 24 hours; Availability (Operational), Availability (Materiel) = .98.	Will meet threshold.
Training KPP: Formal training is a requisite element of WS management and has been instituted for the AOC WS program. The goal of AOC WS training is to provide a comprehensive training approach including schoolhouse, training teams, and local site training aids to include video- and computer-based training materials. AOC training devices and capabilities (e.g., simulators, part-task trainers, embedded training) will interface with distributed mission operations/ training nodes to support the training continuum. The training program shall satisfy requirements for qualifying and sustaining operators, maintainers, trainers, and support personnel skills, knowledge, and task accomplishment capabilities. New systems and applications or modified systems and applications delivered as part of this CDD shall include capabilities to train operators and maintainers as part of the deliverable. Training capabilities include but are not limited to: system manuals, on-line tutorials, on-line training, and formal initial and mission qualification training courses.		
1) Full Distributed mission operations 2) Dual use of systems 3) Operator reconfigure with clear annunciation of mode.	1) Type I and Type II. 2) Demo access to external training source.	Will meet threshold.

Memo

The AOC-WS Increment 10.2 program office received an approved CDD on October 3, 2006. The U.S. Air Force ACC revalidated the CDD on July 16, 2008.

Joint Staff Force Structure, Resources, and Assessment Directorate directed on December 12, 2008 that the CDD be updated for JROC-mandated KPPs. The 10.2 CDD Addendum was approved by the JROC on December 11, 2009.

The AOC WS 10.2 Lead Command, ACC, has drafted, and is currently staffing a CPD, which will be JROC-approved prior to Milestone C.

Acronyms and Abbreviations

ACC - Air Combat Command
Am - Availability (Materiel)
Ao - Availability (Operational)
AOC-WS - Air Operations Center - Weapon System
ATO - Authority To Operate
C2 - Command and Control
CDD - Capability Development Document
DAA - Designated Approval Authority
DISR - Department of Defense Information Technology Standards Registry
GIG - Global Information Grid
IATO - Interim Authority To Operate
IT - Information Technology
J8 - Force Structure, Resources, and Assessment Directorate
JROC - Joint Requirements Oversight Council
KIP - Key Interface Profile
KPP - Key Performance Parameter
KSA - Key System Attribute
MDT - Mean Down Time
MTBM - Mean Time Between Maintenance
NCOW RM - Net-Centric Operations & Warfare Reference Model
NIPRNET - Nonsecure Internet Protocol Router Network
SAP - Special Access Program
SAR - Special Access Required
SCI - sensitive compartmented information
SIPRNET - Secret Internet Protocol Router Network
SMART - System Metric and Reporting Tool
TV - Technical View

Cost

AOC-WS Inc 10.2				
Appropriation Category	BY 2013 $M		TY $M	
	Original Estimate	Current Estimate Or Actual	Original Estimate	Current Estimate Or Actual
Acquisition Cost				
RDT&E	367.2	400.0	374.7	406.5
Procurement	80.9	53.5	88.0	57.2
MILCON	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0
Total Acquisition Cost	448.1	453.5	462.7	463.7
Operating and Support (O&S) Cost				
Total Operating and Support (O&S) Cost	4242.4	4242.4	5122.5	5122.5
Total Life-Cycle Cost				
Total Life-Cycle Cost	4690.5	4695.9	5585.2	5586.2

Cost Notes

1. This report and the Budget Year IT-1 Exhibit cover different time periods thus the costs will not match.
2. Then Year dollars are included for information purposes only; cost variances will be reported against Base Year dollars.
3. The O&S costs reflect all work performed during that phase, regardless of the type or source of funding.